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		1	50
R.graminis	(1)	MAPSLDSLATTLANGFTNGSHAAPTKSAAGPTSA LRTPGLDGHAAHQSQ	
R.mucilaginoso	(1)	MAPSVDSIATSVANSLNGLHAAAANGG-DVHKKTAGAGSLPPTTETTQ	
R.toruloides	(1)	MAPSLDSISHSFANGVASAKQAVNGAS-----TNLAVAGSHLPTTQVTO	
Consensus	(1)	MAPSLDSIATSXANGXXNGXHAAXXASXXXXXXXAXAGSLPTTXXTO	
		51	100
R.graminis	(51)	LEIVQELLSDP-TDDVVELSGYSLTVRDVVGAARKGRVRVQNDDEIRAR	
R.mucilaginoso	(50)	LDIVERITLADAGATDQIKLDGYTLTLGDVVGAARKGRSVKVDSPHIREK	
R.toruloides	(45)	VDIVEKMLAAP-TDSTLELDGYSNLGDVVSAARKGRPVVRKDSDEIRSK	
Consensus	(51)	LDIVEXXLADPXTDDXXELDGYSLTLGDVVGAARKGRXVRVXDSDEIRXK	
		101	150
R.graminis	(100)	VDKSVDFPKAQLQNSVYGVTTGFGGSADTRTEDAVSLQKALIEHQLCGV	
R.mucilaginoso	(100)	IDASVEFLRTQLDNSVYGVTTGFGGSADTRTEDAISLQKALLEHQLCGV	
R.toruloides	(94)	IDKSVEFLRSQLSMSVYGVTTGFGGSADTRTEDAISLQKALLEHQLCGV	
Consensus	(101)	IDKSVEFLRXQLXNSVYGVTTGFGGSADTRTEDAISLQKALLEHQLCGV	
		151	200
R.graminis	(150)	PTSVSSFSVGRGLENLTLPLEVVRGAMVIRVNSLTRGHSAVRLVVLEALTN	
R.mucilaginoso	(150)	PTSMDFALGRGLENSLPLEVVRGAMTIRVNSLTRGHSAVRIVVLEALTN	
R.toruloides	(144)	PSSFDSFRLGRGLENSLPLEVVRGAMTIRVNSLTRGHSAVRLVVLEALTN	
Consensus	(151)	PTSDXDFXLRGRGLENSLPLEVVRGAMTIRVNSLTRGHSAVRLVVLEALTN	
		201	250
R.graminis	(200)	FLNHRITPIVPLRGSISASGDLSPLSYIAGAITGHPDVKVHVLHEGTEKI	
R.mucilaginoso	(200)	FLNHGITPIVPLRGTISASGDLSPLSYIAAISTGHPDSKVHVVDG---KI	
R.toruloides	(194)	FLNHGITPIVPLRGTISASGDLSPLSYIAAISTGHPDSKVHVHVEGKEKI	
Consensus	(201)	FLNHGITPIVPLRGTISASGDLSPLSYIAAISTGHPDSKVHVHVEGKEKI	
		251	300
R.graminis	(250)	MFAREAISLFGLEAVVLGPKEGLGLVNGTAVSASMATLSLHDSHMLLS	
R.mucilaginoso	(246)	MSAQEATLAKGLQPVVLGPKEGLGLVNGTAVSASMATLALTAHVLSLLA	
R.toruloides	(244)	LYAREAMALFNLEPVLGPKEGLGLVNGTAVSASMATLALHDAHMLLS	
Consensus	(251)	MXAREATLALFGLPEVVLGPKEGLGLVNGTAVSASMATLALHDAHMLLS	
		301	350
R.graminis	(300)	QALTALTVEAMVGGQGSFAPFIHDVCRPHPGQVEVARNIRTLLEGSGFAV	
R.mucilaginoso	(296)	QALTALTVEAMVGHAGSFHPLFHDVTRPHPTQIEVARNIRTLLEGSKYAV	
R.toruloides	(294)	QSLTAMTVEAMVGHAGSFHPLFHDVTRPHPTQIEVAGNIRKLEGGSRFAV	
Consensus	(301)	QALTALTVEAMVGHAGSFHPLFHDVTRPHPTQIEVARNIRTLLEGSKFAV	

FIGURE 1A

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		351	400
R.graminis	(350)	EHEEEVKVKDDGILRQDRYPLRTSPQWGLPLVSDMMHAYSTLSLEN-NT	
R.mucilaginoso	(346)	HHTEVKVKDDGILRQDRYPLRCSQWGLPLVSDMIHAHAVLSLEAGQS	
R.toruloides	(344)	HHEEEVKVKDDGILRQDRYPLRTSPQWGLPLVSDLIHAHAVITIEAGQS	
Consensus	(351)	HHEEEVKVKDDGILRQDRYPLRTSPQWGLPLVSDMIHAHAVLSLEAGQS	
		401	450
R.graminis	(399)	TTDNPLLDVENKQTHAGGNFQASAVSISMEKTRRLALIGLKNFTQCTEL	
R.mucilaginoso	(396)	TTDNPLIDLENKMTTHGGAFMASSVGNTEKTRLAVALMGKVSFTQITEM	
R.toruloides	(394)	TTDNPLIDVENKTSHHGGNFQAAAANTMEKTRGLAQIGLKNFTQITEM	
Consensus	(401)	TTDNPLIDVENKXTHGGNFQASAVXNTEKTRRLALIGLKNFTQITEM	
		451	500
R.graminis	(449)	LNAAMNRGLPSCLAEDPSLNYHGKGLDIIHAAAYSELGHLANPVTTFVQ	
R.mucilaginoso	(446)	LNAGMNRGLPSCLAEDPSLSYHCKGLDIAAAAYTSELGHLANPVSTHVQ	
R.toruloides	(444)	LNAGMNRGLPSCLAEDPSLSYHCKGLDIAAAAYTSELGHLANPVTTHVQ	
Consensus	(451)	LNAGMNRGLPSCLAEDPSLSYHCKGLDIAAAAYTSELGHLANPVTTHVQ	
		501	550
R.graminis	(499)	PAEMGNQAVNSLALISARRTAEANDVLSLLASHLYCTLQAVDLRAMELD	
R.mucilaginoso	(496)	PAEMGNQAINSLALISARRTAEANDVLSLLATHLYCVLQAVDLRAFEFE	
R.toruloides	(494)	PAEMANQAVNSLALISARRTTESNDVLSLLATHLYCVLQAVDLRAIFEFE	
Consensus	(501)	PAEMGNQAVNSLALISARRTAEANDVLSLLATHLYCVLQAVDLRAFEFE	
		551	600
R.graminis	(549)	FKKQFDPLLPTLLQOHLGTGLDVN----ALALEVKKALNKRLEQTTTYDL	
R.mucilaginoso	(546)	HTKAFEPMVTELLKQHFAGALAT----AEVEDKVRKSIYKRLQNNNSYDL	
R.toruloides	(544)	FKKQFGPAIVSLIDQHFGSAMTGSNLRDELVEKVNKTLAKRLEQNTNSYDL	
Consensus	(551)	FKKQFXPXXXXLLXQHFGXXXTXXXXXELXXKVKXKXLRLEQNTNSYDL	
		601	650
R.graminis	(595)	EPRWHDAFSYATGTVVVELLSSSPSANVTLTAVNAWKVASA EKAISLTRV	
R.mucilaginoso	(591)	EQRWHDFTFSVATGAVVEALAG---QEVSLASLNAWKVACA EKAIALTRSV	
R.toruloides	(594)	VPRWHDAFSFAAGTVVEVLSS---TSLSLAAVNAWKVAAE SAISLTRQV	
Consensus	(601)	EPRWHDAFSXATGTVVVELLSSXXXXVSLAAVNAWKVAXA EKAISLTRXV	
		651	700
R.graminis	(645)	RNRFWQTPSSQAPAHAYLSPRTRVLYSFVREELGVQARRGDVFGVQOET	
R.mucilaginoso	(638)	RDSFWAAPSSSPALKYLSPRTRVLYSFVREEVGVKARRGDVYLGKQEV	
R.toruloides	(641)	RTFTWASAATSSSPALSYLSPTQILYAFVREELGVKARRGDVFLGKQEV	
Consensus	(651)	RXXFWXAPSSSPALXYLSPRTRVLYSFVREELGVKARRGDVFLGKQEV	
		701	726
R.graminis	(695)	IGSNVSRIYEAIKIDGRINHLVVKMLA	
R.mucilaginoso	(688)	IGTNVSRIYEAIKSGCIAPVLVKMMA	
R.toruloides	(691)	IGSNVSKIYEAIKSGRINNVLKMLA	
Consensus	(701)	IGSNVSRIYEAIKSGRINXVLVKMLA	

FIGURE 1B

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		1	50
R. graminis	(1)	ATGGCCCCCTTCTTGGACTCGCTCGCCACCACGCTCGCCAAACGGCTTAC	
R. mucilaginosa	(1)	ATGGCCCCCTCGCTCGACTCGATCGCGACTTCGGTTGCCAACTCCCTCTC	
R. toruloides	(1)	ATGGCACCCTCGCTCGACTCGATCTCGCACTCGTTCGCAAAACGGCGTCG	
Consensus	(1)	ATGGCCCCCTCCTCGACTCGATCGCGACTCGTTCGCAAAACGGCNTCNC	
		51	100
R. graminis	(51)	CAACGGCTCGCACGCGCTCCGACCAAGTCGGCTGCGGGCCCCACTTCGG	
R. mucilaginosa	(51)	GAACGGGTTCGACGCGC---CCGCC---GCCGCGCAACGGTGGCGAGCTCA	
R. toruloides	(51)	ATCCGCAAAAGCAGGCTG-----TC-----AATGGCGCTCGACCA	
Consensus	(51)	NAA CGGN TNGC ACGCCGNNCCGNCNNNGNCGNCNACGGGCGCCACGTCCA	
		101	150
R. graminis	(101)	CTCTCCGCGCACGCC-CGGCTCGATGGCCACG-CGCGCACCAAGTCGC	
R. mucilaginosa	(96)	CAAGAAGACGCGCGGTGCTGGCTCCCTCTCCGACCAACCGAGACGACCC	
R. toruloides	(86)	ACCTC----GCAGTCGAGGTCGCACCTGCCACCAACCCAGGTCAACG	
Consensus	(101)	CNCTCNGNCGGCCGNCGCGNGGCTCGCTCTCCCGACCAACCGNNGACGC	
		151	200
R. graminis	(149)	AGCTCGAGATCGTGCAGGAGCTCCTCAGCGACCCCAACCG--ACG-ACGTC	
R. mucilaginosa	(146)	AGCTCGACATCGTTGAGCGCATCTTGCGCGACGCGCGCGGACGACGAG	
R. toruloides	(131)	AGGTCGACATCGTCGAGAAGATGCTCGCGCGCGCGACCGACTCG-ACG--	
Consensus	(151)	AGCTCGACATCGTNGAGNAGATCTCGCCGACCCACCGNNACGNAAGNN	
		201	250
R. graminis	(196)	GTCGAGCTCAGCGGGTACAGCCTCACCGTCCGTGACGTTGTTCGGCGCGC	
R. mucilaginosa	(196)	ATCAAACCTCGATGGGTACACCTCAGCGTCGCGCGACGTCGTTCGGCGTGC	
R. toruloides	(178)	CTCGAACTCGACGCGTACTCGCTCAACCTCGGAGACGTCGTCCTCGCGCGC	
Consensus	(201)	NTCGAACTCGACGGGTACACCTCACCTCGGNGACGTCGTCGGCGCGCG	
		251	300
R. graminis	(246)	CCGCAAGGGGCGCAGGGTCCGCGTC-CAGAACGACGACGAGATCCGCGCA	
R. mucilaginosa	(246)	TCGCGGTGCGCGCTCCGTCAGGTCGACAGACGCCGC-ACATCCGCGAG	
R. toruloides	(228)	GAGGAAGGGCAGGCCTGTCCGCGTCAAGGACAG-CGACGAGATCCGCTCA	
Consensus	(251)	NCGCAAGGGCGCNCNGTCCGCGTCNACAGACAGNCGACGAGATCCGCGCA	
		301	350
R. graminis	(295)	CGCGTCGACAAGAGCGTTCGACTTCTCAAAGGCCAGCTTCAGAACTCGGT	
R. mucilaginosa	(295)	AAGATCGATGCGCAGTGTTCGAGTTCCTCCGTACTCAGCTCGACNACAGTGT	
R. toruloides	(277)	AAGATTGACAAATCGGTTCGAGTTCCTGCGCTCGCAACTCTCCATGAGCGT	
Consensus	(301)	AAGATCGACAANAGNTGCGAGTTCCTCCGNNCNCAGCTCNACAAACAGNGT	
		351	400
R. graminis	(345)	CTACGGAGTCACCAACGGGTTTCGGTGGCTCGGCGCAGACGAGGACTGAGG	
R. mucilaginosa	(345)	CTACGGGTGACGACTGGTTTCGGCGGCTCGGCGCAGACACCCGGACTGAGG	
R. toruloides	(327)	CTACGGCGTCACGACTGGATTTCGGCGGATCCGCGACACCCGACCCGAGG	
Consensus	(351)	CTACGGNGTCACGACTGGTTTCGGCGGCTCGGCGCAGACCCGGACTGAGG	
		401	450
R. graminis	(395)	ATGCAGTCAGCCTCCAGAAAGCGCTCATCGAGCACCAGCTCTCGCGCGTG	
R. mucilaginosa	(395)	ATGCGATCTCGCTCCAAAGGCCCTCTCGAGCACCAGCTCTGCGGGTGTG	
R. toruloides	(377)	ACGCCATCTCGCTCCAGAAAGGCTCTCTCGAGCACCAGCTCTGCGGGTGT	
Consensus	(401)	ATGCNATCTCGCTCCAGAAAGGCNCTCTCGAGCACCAGCTCTGCGGGTGTN	

Figure 2A

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	451	500
R. graminis	(445)	ACGCGACGTCCGTCTCGTCTTCAGCGTCGGACGCGCCCTCGAGAACAC
R. mucilaginosa	(445)	CTCCCCACCTCGATGGATGGCTTTGCGCTCGGTCCGCGCCCTCGAGAACTC
R. toruloides	(427)	CTCCCTTCGTGTTGACTCGTTCGCGCTCGGCGCGGTCTCGAGAACTC
Consensus	(451)	CTCCNACGTCGNTCGANTCTTCNGCCTCGGNCGGCGCCTCGAGAACTC
	501	550
R. graminis	(495)	GCTTCCGTCGAGGTCGTCCGCGGCGCCATGGTCATCCGCTCAACTCGC
R. mucilaginosa	(495)	GCTTCCGTCGAAGTCGTCCGAGGCGCGATGACCATCGGTCAACTCGC
R. toruloides	(477)	GCTTCCCTCGAGGTTGTTCCGCGCGCCATGACAATCCGCGTCAACAGCT
Consensus	(501)	GCTTCCGTCGAGGTCGTCCGCGGCGCCATGACCATCCGCGTCAACTCGC
	551	600
R. graminis	(545)	TCACGCGTGGCCACTCGGCGGTCGCGCTCGTCGCTTTCGAGGCGCTCACC
R. mucilaginosa	(545)	TCACTCGCGGTCACTCGGCGGTCGCGATCGTCGCTTCGAAGCCCTCACC
R. toruloides	(527)	TGACCCGCGGCCACTCGGCTGTCCGCTCGTCGCTCAGAGGCGCTCACC
Consensus	(551)	TCACNCGCGGCCACTCGGCNGTCCGCTCGTCGCTCCTCGAGGCGCTCACC
	601	650
R. graminis	(595)	AACTTCTTGAACCAACGATCACGCCCATCGTCCCCCTCCGCGGCTCCAT
R. mucilaginosa	(595)	AACTTCTTCAACCAACGATCACCCGATCGTCCGCTTCGAGGACCAT
R. toruloides	(577)	AACTTCTTCAACCAACGATCACCCCATCGTCCCCCTCCGCGGACCAT
Consensus	(601)	AACTTCTTCAACCAACGATCACCCCATCGTCCCCCTCCGCGGACCAT
	651	700
R. graminis	(645)	CTCGGCGTCGGGCGACTTCAGCCGCTCTCGTACATCGCCGGCGCATCA
R. mucilaginosa	(645)	CTCGGCGTCGGGCGACCTTTCGCCCTCTCTTACATCGCCGCTCGATCA
R. toruloides	(627)	CTCTGCGTCGGGCGACTCTCTCCTCTCTCCTACATTCGAGCGCCATCA
Consensus	(651)	CTCGGCGTCGGGCGACTCTCCCNCTCTCNTACATCGCCGCGCATCA
	701	750
R. graminis	(695)	CCGGTCACCCGACGTCGAAGGTTACGTTTTCACGAGGGGAACCGAGAAG
R. mucilaginosa	(695)	CCGGCCACCCGACTCGAAGGTTACGTT-----CGACGGCA-----AG
R. toruloides	(677)	CCGGTCACCCGACGTCGAAGGTTGACGTCCTCCACGAGGGCAAGGAGAAG
Consensus	(701)	CCGGTCACCCGACNNCAAGGTTNACGTTNNTNACGAGGGCANNAGAGAAG
	751	800
R. graminis	(745)	ATCATGTTTTCGCGCGAGGCCATCTCGCTCTTTGGTCTTCGAGGACGCT
R. mucilaginosa	(733)	ATCATGTTCGCCCGAGGAGCGATCGCGCTCAAGGCTTTCAGCCGCTCGT
R. toruloides	(727)	ATCTGTATCGCCCGAGGCGATGCGCTCTTCAACCTCGAGCCGCTGCT
Consensus	(751)	ATCATGTNCGCCCGAGGCGATCGCGCTCTTNGTCTTCGAGCCGCTCGT
	801	850
R. graminis	(795)	CCTCGGCCGGAAGGAGGTTCTCGGTCTGGTCAACGGAACGGCCGCTCCCG
R. mucilaginosa	(783)	CCTCGGTTCGAAGGAGGTTCTCGGTCTGGTCAACGGAACGGCCGCTCCCG
R. toruloides	(777)	CCTCGGCCGGAAGGAGGTTCTCGGTCTGGTCAACGGAACGGCCGCTTCAG
Consensus	(801)	CCTCGGCCGGAAGGAGGTTCTCGGTCTGGTCAACGGCACGGCCGCTTCGG
	851	900
R. graminis	(845)	CCTCGATGGCGACCTCAGTCTGCACGACTCGCACATGCTCTCGCTCCTC
R. mucilaginosa	(833)	CCTCGATGGCGACCTGCGCCCTCACCGACGACACATGCTCTCGCTCCTC
R. toruloides	(827)	CATCGATGGCGACCTCGCTCTGCACGACGCAACATGCTCTCGCTCCTC
Consensus	(851)	CCTCGATGGCGACCTCGCTCTGCACGACGACACATGCTCTCGCTCCTC

Figure 2B

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		901	950
R.graminis	(895)	TCGCAGGCCTTGACGGCTCTCACGGTGGAGGCCATGGTCGGCCAGCAGGG	
R.mucilaginosa	(883)	GCACAGGCGCTCACTGCTTACTGTTCGAGGCCATGGTCGGACACGCCGG	
R.toruloides	(877)	TCGCAGTCGCTCACGGCCATGACGGTTCGAAGCGATGGTCGGCCACGCCGG	
Consensus	(901)	TCGCAGGCGCTCACGGCTCTNACGGTCGAGGCCATGGTCGGCCACGCCGG	
		951	1000
R.graminis	(945)	CTCGTTCCGCGCGTTTATCCACGACGCTGCGCGCCGCCACCCCGGGCCAGG	
R.mucilaginosa	(933)	CTCGTTCCACCCATTCTCCACGACGCTACGCGCCCTCACCCGACCCAGA	
R.toruloides	(927)	CTCGTTCCACCCCTTCTTTCACGACGCTACGCGCCCTCACCCGACCCAGA	
Consensus	(951)	CTCGTTCCACCCNTTCTTCCACGACGCTACGCGCCCTCACCCGACCCAGA	
		1001	1050
R.graminis	(995)	TCGAGGTCGCGCGCAACATCCGACGCTCCTTTCGCGCTCGTCGTTTGCC	
R.mucilaginosa	(983)	TCGAGGTGGCGCGCAACATCCGGACTCTTCTCGAGGGCAGCAAGTACGCC	
R.toruloides	(977)	TCGAAGTCGCGGGAACATCCGCAAGCTCTTCGAGGGGAAGCGCTTTGCT	
Consensus	(1001)	TCGAGGTCGCGCGCAACATCCGACGCTCCTCGAGGGCAGCNGTTTGCC	
		1051	1100
R.graminis	(1045)	GTTGAGCACGAGGAGGAGGTCAAGGTCAAGGACGACGAGGGCATTTCTTG	
R.mucilaginosa	(1033)	GTCACCCACGAGACTGAAGTCAAGGTCAAGGACGACGAGGGCATCTTCAG	
R.toruloides	(1027)	GTCACCATGAGGAGGAGGTCAAGGTCAAGGACGACGAGGGCATTTCTCG	
Consensus	(1051)	GTCACCCACGAGGAGGAGGTCAAGGTCAAGGACGACGAGGGCATTTCTCG	
		1101	1150
R.graminis	(1095)	CCAGGACCGCTACCCGCTCCGCACGTGCGCTCAGTTCTCGGCCGCTCG	
R.mucilaginosa	(1083)	GCAGGACCGGTACCCGCTCCGCTGCTCGCGCAGTGGCTCGGTCCCTTG	
R.toruloides	(1077)	CCAGGACCGCTACCCCTTTCGCGACGCTCTCTCAGTGGCTCGGCCGCTCG	
Consensus	(1101)	CCAGGACCGCTACCCGCTCCGCACGTGCGCTCAGTGGCTCGGCCGCTCG	
		1151	1200
R.graminis	(1145)	TGGAGGACATGATGACGCGCTACTCGACTCTCTCGCTCGAGAACA---AC	
R.mucilaginosa	(1133)	TCAGCGACATGATTACGCTTCACGCTGTCTCTCGCTCGAGGCTGGTCAG	
R.toruloides	(1127)	TCAGCGACCTATTACGCCCCACGCGTCTCTCACCATTACGAGCGCGCCAG	
Consensus	(1151)	TCAGCGACATGATTACGCCCCACGNGTCTCTCTCGCTCGAGGCGCGNACG	
		1201	1250
R.graminis	(1192)	ACGACGACCGACAACCCGCTCTTCGACGTGAGAAACAAGACAGCCGGCA	
R.mucilaginosa	(1183)	TCGACACCGACAACCCGCTGATCGACCTCGAGAAACAAGATGACCCACCA	
R.toruloides	(1177)	TCGACGACCGACAACCCCTCTATCGACGTGAGAAACAAGACTTCGACCA	
Consensus	(1201)	TCGACGACCGACAACCCGCTCATCGACGTGAGAAACAAGANGACCCACCA	
		1251	1300
R.graminis	(1242)	CGGCGGCAACTTCCAGGCGTCGGCTGTCTCGATTTCGATGGAGAAGACCA	
R.mucilaginosa	(1233)	TGGCGGAGCCTTTCATGGCGAGCAGGCTCGGAACAACGATGGAGAAGACTC	
R.toruloides	(1227)	CGGCGGCAATTTTCAGGCTCCGCTGTGGCCAACACCATGGAGAAGACTC	
Consensus	(1251)	CGGCGGCAACTTTCAGGCGNCCGCTGTGCGNAAACGATGGAGAAGACTC	
		1301	1350
R.graminis	(1292)	GGCTCGCACTCGCCCTCATCGGAAGCTCAACTTCACGAGTGCACCCGAG	
R.mucilaginosa	(1283)	GCCTCGCGCTCGCGCTGATGGGCAAGGTCAAGCTTTACTCAGCTCACCCGAG	
R.toruloides	(1277)	GCCTCGGGCTCGCCACAGATCGGCAAGCTCAACTTCACGAGCTCACCCGAG	
Consensus	(1301)	GCCTCGCNCTCGCCCTGATCGGCAAGCTCAACTTCACGAGCTCACCCGAG	

Figure 2C

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		1351		1400
R.graminis	(1342)	TTGCTCAACGCTGCCATGAACCGCGGCTGCCTTCGTGCCTCGCTGCCGA		
R.mucilaginosa	(1333)	ATGCTCAACGCCGGCATGAACCGGGCCCTTCGTGCCTCGCTGCCGA		
R.toruloides	(1327)	ATGCTCAACGCCGGCATGAACCGCGGCTTCCTTCGTGCCTCGCGGCCGA		
Consensus	(1351)	ATGCTCAACGCCGGCATGAACCGCGGCTTCCTTCGTGCCTCGCTGCCGA		
		1401		1450
R.graminis	(1392)	GGACCCGTCGCTCAACTATCAGCGCAAGGGCTTGGACATTACATCGCTC		
R.mucilaginosa	(1383)	GGACCCCTCCCTCTCTTATCATCGCAAGGCTTCGACATTGCTGCGCGG		
R.toruloides	(1377)	AGACCCCTCGCTCTCTTACACTGCAAGGGCTTCGACATCGCGCTCGCG		
Consensus	(1401)	GGACCCNTCGCTCTCTTATCATCGCAAGGGCTTCGACATTGCGCGGCGNG		
		1451		1500
R.graminis	(1442)	CTTACGCTTCGGAGCTCGGCCACCTTGCCAAACCGGTCACCTACCTTCGTC		
R.mucilaginosa	(1433)	CCTACACTTCGAGCTCGGTCACCTTGCCAAACCGGTTTCGACCCACGTC		
R.toruloides	(1427)	CGTACACCTCGAGTTGGGACACCTCGCCACCCCTGTGACGACGCATGTC		
Consensus	(1451)	CNTACACTTCGGAGCTCGGNCACCTTGCCAAACCGGTTNACGACCCACGTC		
		1501		1550
R.graminis	(1492)	CAGCCCGCAGAGATGGGCAACCAGGCGTCAACTCGCTCGCTCATCTC		
R.mucilaginosa	(1483)	CAGCCGCGCAGATGGGCAACCAGGCCATCAACTCGCTCGCCCTCATCTC		
R.toruloides	(1477)	CAGCCGGCTGAGATGGCGAACCGGCGGTCAACTCGCTTCGCTCATCTC		
Consensus	(1501)	CAGCCGCGCAGATGGGCAACCAGGCGTCAACTCGCTCGCNCATCATCTC		
		1551		1600
R.graminis	(1542)	CGCGCGCCGCACTGCCAGGGCCAAACGACGTCCTTTCTCTCTCTCGCCT		
R.mucilaginosa	(1533)	GGCCCGCCGCAACCCGCGAGCGAACGACGTTCTCTCCCTCTCTCGGCA		
R.toruloides	(1527)	GGCTCGTCGACGACCGAGTCCAACGACGTCCTTTCTCTCTCTCTCGGCA		
Consensus	(1551)	GGCNCGCCGACGNCGGAGGGCCAAACGACGTCCTTTCTCTCTCTCTCGGCA		
		1601		1650
R.graminis	(1592)	CGCACTGTACTGCACGCTCCAGGCGGTCGACCTCCGCGCATGGAGTTC		
R.mucilaginosa	(1583)	CCCACCTCTACTGCGTCTCCAGGCGGTCGACCTCCGCGCATGGAGTTC		
R.toruloides	(1577)	CCCACCTCTACTGCGTCTCCAGGCGGTCGACCTCCGCGCATGGAGTTC		
Consensus	(1601)	CCCACCTCTACTGCGTCTCCAGGCGGTCGACCTCCGCGCATGGAGTTC		
		1651		1700
R.graminis	(1642)	GAGTTCAGAAGCAGTTTCGACCCGCTTCTCCGACTCTCTCCAGCAGCA		
R.mucilaginosa	(1633)	GAGCACACCAAGCGGTTTCGAGCCGATGGTCACTGAGCTGTTGAAGCAGCA		
R.toruloides	(1627)	GAGTTCAGAAGCAGTTTCGCGCCAGCCATCGTCTCGCTCATCGACACGCA		
Consensus	(1651)	GAGTTCAGAAGCAGTTTCGACCCGNTNNTCNCNNGCTCTCNCAGCAGCA		
		1701		1750
R.graminis	(1692)	CCTCGGCACTGGCTTCGACGTC-----ACGCACTTGGCGCTCG		
R.mucilaginosa	(1683)	CTTTGGCGC-GTCGCGACGCGC-----CGAAGTCGAGGACA		
R.toruloides	(1677)	CTTTGGCTCCGCCATGACCGGCTCGAACCTGCGCGACGAGTCTGTCGACA		
Consensus	(1701)	CTTTGGCNCNGCCCTCGACGCGNNNNNNNNNNNACGAACCTCGNGGACA		
		1751		1800
R.graminis	(1730)	AGGTCAAGAAGGCGCTCAACAAGCGTCTCGAGCAGACGACGATACGAC		
R.mucilaginosa	(1718)	AGGTCCGCAAGTCGATCTACAAGCGGTTGCAGCAGAACAACTCGTACGAC		
R.toruloides	(1727)	AGGTGAACAAGACGCTCGCCAAGCGCTCGAGCAGACCACTCGTACGAC		
Consensus	(1751)	AGGTCAACAAGNCGCTCNACAAGCGNCTCGAGCAGACCACTCGTACGAC		

Figure 2D

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		1801		1850
R. graminis	(1780)	CTCGAGCCGCGCTGGCACGACGCCTTCTCGTACGCGACCGGCACCGTCGT		
R. mucilaginosa	(1768)	CTCGAGCAGCGGTGGCACGACACGTTCTCGGTGCGGACCGGTGCGTCGT		
R. toruloides	(1777)	CTCGTCCGCGCTGGCACGACGCCTTCTCCTTCGCGCGCGGACCGTCGT		
Consensus	(1801)	CTCGAGCCGCGCTGGCACGACGCCTTCTCGTTCGCGACCGGCACCGTCGT		
		1851		1900
R. graminis	(1830)	CGAGCTCCTCTCGTCTCGCCCTCTGCCA--ACGTACCCCTTACTGCCGT		
R. mucilaginosa	(1818)	CGAG-----GCGCTCGCCG---GCGAGGAGTCTCGCTCGCGAGCCT		
R. toruloides	(1827)	CGAG-----GTCTCTCGTC--GACGT-CGCTCTCGCTCGCCGCGCT		
Consensus	(1851)	CGAGNNNNNNNNGTCTCTCGCENNNGCCANNAGTCTCGCTCGCNGCCGT		
		1901		1950
R. graminis	(1878)	CAACGCGTGAAGGTTGCCTCGGCCGAGAAGGCCATCTCGCTCACGCGCG		
R. mucilaginosa	(1857)	CAACGCCTGGAAGTTCGCTCGGCCGAGAAGGCTATCGCGCTCACGCGCT		
R. toruloides	(1866)	CAACGCCTGGAAGTTCGCGCGCGAGTCGCGCATCTCGCTCACCGGCC		
Consensus	(1901)	CAACGCCTGGAAGTTCGCTTCGCCGAGAAGGCCATCTCGCTCACGCGCN		
		1951		2000
R. graminis	(1928)	AGGTGCGCAACCGCTTCTGGCAGACGCGCTCTTCGCGAGGCCGCGCGAC		
R. mucilaginosa	(1907)	CGGTCCGCGACTCGTTCTGGCGGCTCGTCTGTCGTCGTCGCGCGCTC		
R. toruloides	(1916)	AAGTCGCGGAGACCTTCTGGTCCGCGCGTGCACCTCGTCGCGCGCGCT		
Consensus	(1951)	ANGTCGCGGACNCTTCTGGNCGGCNCCGTCGTCGTCGTCGCGCGCTC		
		2001		2050
R. graminis	(1978)	GCATACCTCTCGCGCGCACGCGCGTCTGTTACTCGTTCTGTCGCGAGGA		
R. mucilaginosa	(1957)	AAGTACCTCTCCCGCGGACGCGCGTCTGTATTCTGTTCTGTCGCGAGGA		
R. toruloides	(1966)	TCGTACCTCTCGCGCGCACTCAGATCCTCTACGCGCTTCGTCCGCGAGGA		
Consensus	(2001)	NCGTACCTCTCGCGCGCACGCGCGTCTGTACTCGTTCTGTCGCGAGGA		
		2051		2100
R. graminis	(2028)	GCTCGCGTGCAGGCGCGCGCGCGGACGTGTTTGTGCGCGTGCAGCAGG		
R. mucilaginosa	(2007)	GGTTCGCGTCAAGGCCCGCGCGCGCGGATGTCTACCTCGGCAAGCAGGAGG		
R. toruloides	(2016)	GCTTGGCGTCAAGGCCCGCGCGGAGACGTCTTCTCGGCAAGCAAGAGG		
Consensus	(2051)	GCTCGCGTCAAGGCCCGCGCGCGGACGTCTTCTCGGCAAGCAGGAGG		
		2101		2150
R. graminis	(2078)	AGACGATCGGAGCAACGCTCTCGCGCATCTACGAGGCCATCAAGGACGGC		
R. mucilaginosa	(2057)	TCACGATCGGCACCAACGTCAGCGCATCTACGAGGCGATCAAGAGCGGT		
R. toruloides	(2066)	TGACGATTCGGTTCGAACGCTTCCAGATCTACGAGGCCATCAAGTCGGGC		
Consensus	(2101)	TGACGATCGGCACCAACGCTTCCGCGCATCTACGAGGCCATCAAGNCGGC		
		2151		2200
R. graminis	(2128)	CGCATCAACACGTCCTCGTCAAGATGCTCGCGTAAGGCC-CGAGCAAGC		
R. mucilaginosa	(2107)	TGCATCGCCCCGTCCTCGTCAAGATGATGGCATAG		
R. toruloides	(2116)	AGGATCAACCAACGTCCTCGTCAAGATGCTCGCTTAGACACTCTTCCACT		
Consensus	(2151)	NGCATCAACACGTCCTCGTCAAGATGCTCGCNTAGNNNCNCCNNNCCNN		
		2201		2250
R. graminis	(2177)	CTCGCCTAGACGCCCGCCTCACCCCAAGACCAGCTTTTCGACGTCGTGTC		
R. mucilaginosa	(2143)	-----		
R. toruloides	(2166)	CTCGCATCCCTTCCATACCTATCCGCGCTGCACCTCTTAGGACTCGCTTC		
Consensus	(2201)	CTCGCNTNNNNNCNNNCNCCNNCCNNNNNNNNCTNTTNNNNNTCGNNTC		

Figure 2E

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		2251		2300
R.graminis	(2227)	GTGCCAAGAACGGACTTTCTCCATACACATGTCGCCTTACTCTCTCGCC		
R.mucilaginoso	(2143)	-----		
R.toruloides	(2216)	TTGTCGGACTCGGATCTCGCATCGCTTCTTTTCGTCTCTGGCTGCCTCTCT		
Consensus	(2251)	NTGNCNNNNNCGGANNTNNCNNNNNNNNNTNNNNCTNNCTNNCTNNCTNN		
		2301		2350
R.graminis	(2277)	GTCATCACGTCTCTCAGTTCTTTCGTATCCCGCTCTCTCGGTCGTCAGT		
R.mucilaginoso	(2143)	-----		
R.toruloides	(2266)	AG-ACCGTGTCCGTATTACCTCGAGATTGTGAATACAAGCAGTACCCATC		
Consensus	(2301)	NNNANCNNGTCNNTNNNNNNCTNNNGNNTNNNNNNNNNNCNGTNNNCANN		
		2351		2400
R.graminis	(2327)	-ACACGTGTATAGAGCCTGGAATGGATTGCAAGTCTTCGAGTCAAAAAA		
R.mucilaginoso	(2143)	-----		
R.toruloides	(2315)	CACGCATCCGATAAATCAGGGAGAGAATCTACGCTTGCGGGAGCTTCTTG		
Consensus	(2351)	NACNCNTNNNNNNNANNCNGGNANGANTNNANGNNTNCGNGNNNNNNNN		
		2401		2450
R.graminis	(2376)	AAAAAAA-----		
R.mucilaginoso	(2143)	-----		
R.toruloides	(2365)	CGCATAAACTGTCGAGTGC GGCGCTTAGTGCGAAGTCAACGAAGCGGAGT		
Consensus	(2401)	NNNANAAANNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN		
		2451		2475
R.graminis	(2384)	-----		
R.mucilaginoso	(2143)	-----		
R.toruloides	(2415)	GGCAGCGGCTCACTACCGCTCGAG		
Consensus	(2451)	NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN		

Figure 2F

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ATGCGCCCTTCCTGGACTCGCTCGCCACACGCTCGCCAAACGGCTTTACCAACGGCTCGCACGCGCTCCGA
CCAAGTCGGCTCGGGCCCCACTTCGGCTCTCGCCGACGCGCCGGCTCGATGGCCACGCGCGCACAGTTC
GCAGCTCGAGATCGTCAGGAGCTCTCTACGCGACCCACCGACGACGTCTGTCGAGCTCAGCGGGTACAGCCTC
ACCGTCCGTGACGTTTGTGCGCGCGCCCGCAAGGGGCGCAGGGTCCGCGTTCAGAACGACGACGAGATCCGCG
CACGCGTCGACAGAGCGTGCAGTTCCTCAAGGCCAGCTTCAGAACTCGGTCTACGGAGTCAACACGGTTCGG
TTCCGAGACGAGAGGCGGAAATCTCGGGATGCCGACGCTGAAACGCTGACACTCGCTTGGACGGCTCGCCCG
GTCTTCGACGGGTTTCGGTGGCTCGGCCGACACGAGGACTGAGGATGTCAGTACGCTCCAGAAAGCGCTCATCG
AGCACCACTCTCGCGCGTGACGCGACGCTCCGCTCTCGCTTCAGCGTCGCGACGCGCGCTCGAGAACACGCT
TCCGCTCGAGGTGCTCGCGCGCGCATGCTCATCCGCGTCAACTCGCTCACGCGTGCCACTCGCGCGCTCCG
CTCGTCTGCTTTGAGCGCTCACCACTCTTGAACACCGCATACGCGCATCGTCCCGCTCCGCGCGCTCCA
TCTCGCGCTCGCGCGACCTCAGCCGCTCTCGTACATCGCGCGCGCATCACCGGTCAACCCGACGCTCAAGGT
TCACGTTTTGTCAGAGGGAACCGAGAAGATCATGTTTGGCGCGAGGCCATCTCGCTCTTTGGTCTCGAGGCA
GTCCGTACGTCGCGAGTCTGACTGCACTGAGCTGTTTCGAGAGTCTCCAGTTTGCTGACTGCCCTTTGTTCA
TCCGATTGCGAGTCTCGGCCGAGGAGGGTCTCGGTCTGGTCAACGGAACGCGCTCTCCGCTCGATGGCG
ACCTTCAGTCTGACGACTTCGCACATGCTCTCGCTCTCTCGCAGGCTTCACGGTTCGAGGCCA
TGGTCGCGCAGCAGGGCTCGTTCGCGCGCTTATCCACGACGCTTCGCCCGCGCACCCGCGCAGGTTCGAGGT
CGCGCGCAACATCCGACGCTCCTTTCCGGCTCGTCTTGGCGTTGAGCACGAGGAGGAGGTCAAGGTCAAG
GACGACGAGGGCATTTCTTCGCGAGGACGCTACCCGCTCCGCGACGCTCGCTCAGGTTCGTCCCTCTCTCTCC
CCTTCCCTCCGTCGCGCGCGCGCTCGAGACTTACGTTTTCGCTATCCAGTTCTTCGCGCGCTCGTGGAGGA
CATGATGCACGCTCATCGACTCTCTCGCTCGAGAACCAACGACGACGACGACCAACCGCTCTTCGACGTGAG
AACAGACGACCTCGCACGCGCGCAACTTCCAGGCTCGGCTGTCTCGATTTCGATGGAGAAGACAGGTTCGG
TCTCTCGTCCCTTCGACTCCGATCTTGTGCTGAATGTTCTTCTCTCGCAGGCTCGCACTCGCCCTCATCGG
CAAGTCTAACTTCACGAGTGCACCGAGTTGCTCAACGCTGCCATGAACCGCGGCTTACGCTTCGAGGTGA
GCCGTGACGCTTTCGCGCGCTCGTCTCCCTTCAGCGCACCCAGGCTGACTTCTTTCCCTCTGAGCTCG
GCCACCTTGCAACCGGTCACTACCTTCGTCACGCCGCGAGATGGGCAACGAGGCGCTCAACTCGCTCGC
TCTCATCTCCGCGCGCGCACTTCGCGAGGCCAACGACGCTCCTTCTCTCGTTCGTTTCGTGTCGCAATGAGTCC
CGACGCAATAGCGACTGACTGCGGATCCTGAGCAGCTTTCGCTCGCACTGTACTGCAAGCTCCAGGCGG
TCGACTCCGCGGATGGAGTTCGACTTCAAGAACGAGTTCGACCCGCTTTCGCGACTCTCTCCAGCAGCA
CCTCGGCACTGGCTCGACGCTCAACGCACTTCGCTCGAGGTCAAGAACGCGCTCAACAGCGTCTCGAGCAG
ACGACGAGTACGACTCGAGCGCGCTGCGCAGCAGCCTTCTGTCGCGACCGGCAAGCTCGTTCGAGCTTC
TCTGCTCTCGCCCTTCGCCAACGTCACCTTACTGCGCTCAACGCGTGAAGGTTGCTTCGCGCGAGAACGC
CATCTCGCTCACGCGGAGGTGCGCAACGCTTTCGCGACGCGCGCTTCGCGAGGCGCGCGCACGACATAC
CTCTCGCGCGCACGCGCTCTGTACTGTTCTGTCGCGGAGGAGCTTCGCGTGCAGGCGCGCGCGCGCGG
TGTTTGTGCGCGTCGACGAGGACGATCGGAGCAGCTTCGCGCATCTCAGGCGCTCAGGCGCGCGCGCGG
CATCAACACGCTCTCTGTCAGAGTTCGCGTAAAGGCCGAGCGCTCGCTAGAGCGCGCTTACCCCA
AGACGAGCTTTTCGAGCTCGTGTGCTGCGCAAGAACGCACTTCTTCATACATATGCTGCTTACTCTCTCG
CGTCATCAGCTCTCAGTTCTTTCGTATCCGCGCTCT

FIGURE 3

ATGGCACCCTTCCTTGAGACCGCTCGGCCACCACGCTGTCCAAACGGCTTTACCAACGGCTCGCACCGCGCTTCGCA
CCAAAGTCGGCTCGCGGCCCACTTCGGCTCTCCGCGCACGCCCGCTCGATGGTCCGACGCGCGCCAGCACTG
CGAGCTCGAGATCTGTGAGGAGCTCTCAGCGACCCACCGACGACGCTCGTCAGAGCTCAGCGGGTACAGCCTC
ACCGTCCGCTGACGCTTGTTCGCGCGCCGCGCAAGGGCGCGAGGGTCCGCGTCCAGAAAGCAGACGAGATACCGCG
CAGCGTGCACAAAGAGCTCGACTCTCTCAAGCGCCAGGTTTCAGAACTCGGTTTCACGAGTACACACGGTTCG
TTCGGAACGACGAGAGCGGAAATCTCGGGATTCGCGCAGCGCTGTGAACCGTGACACTCTCTTGAGAGCGCTCGCGG
GTCTTCGAGGGTTTCGTGGCTCGGCCGACACGAGGACTGAGATGCACTGACGCTCCGACGAAGGCCTCATCT
AGCCACAGCTCTCGCGGTGACGCGACGCTCGCTCTGCTCTTCAGCGTTCGACGCGCGCTCGAGAAACAGCT
TCGCGTTCGAGGTCGTTCGCGCGCACTGCTCATCCGGTCAACTGCTCAGCTGCGACGTCGCGCTCGCGCTCGC
CTCGCTGCTCTTGAGCGCTTACCAACTCTTTGAACACAGCTACACGCCATCTGCTCCCTCCGCGGCTCCCA
TCTCGCGCTCGGGCGACTCAGCGGCTCTGTCATCATCCGCGCGCTATCCGGTACCCGAGCTCAAGGT
TCAGCTTTTGCACGAGGGAACCGAGAGATCATGTGTTGCGCGCGAGGCCATCTCGCTCTTTGTTCTCGAGCGCA
CTCGGTACGTCGCGAGCTCTGACTCGAGTCAAGTGTCTCGAGGTCTTCCAGATTTGCTGACTGCTCCCTTTGTTCA
TGCAGTTTCAGCTCTTCGCGCGCAAGAGAGGTTCTGCTGTGTTCAAACGGAACGGCGCTCTCGCGCTCGATGGCG
ACCCCTCAGCTTCGACGACTCGACATGCTCTCGCTCTCTTCGACGGCTTTGACGGCTCTCAGGTCGGAGGCGA
TGTTGCGCGCAGAGAGGCTCGTTTCGCGCGCTCATCCACGACTTCGCGCGCACCCGCGCAGGTGCGAGGT
CGCGCGCAACATTCGCGCTCTTTTCGCGCTCTGTTTTCGCGTTTGAGCAGCAGGAGAGAGTCAAGGTCTAAG
GACGACGAGGGCACTTCTTCGCGAGCAGCTACCGCTCGCGACTGCGCTCAGGTTGCTCTCTCTCTCTCTCT
CCITTCCTTCGCTCGCGACCGCGGCTCGAGACTACGTTTTCGCTTTCAGGTTCTCTCGCGCGCTCGGTGGAGGA
CATGATGACGCTCATGACTCTCTGCTCGAGAAACACGACGACGACGCAACCGGCTCTCTCGACTCTGAG
AACAAAGCAGACCGCGCACCGCGCAACTTCCAGCGGCTCGGCTGTCTCGATTTTCGATGAGAAACGACAGGTGCG
TCTCTCGCTCGCTCTGACTCGACTCTTGTCGTAAGTCTCTCTCGAGGCTCGACTCGCCCTCATCGG
CAAGCTCAACTTCAGCGAGTGCACGAGTGTCTCAACGCTGTCATGAACCGCGGCTCGCTTCGTGCTCGCT
CGCGAGGACCGCTCGCTCAACTATCACGCAAGGGCTTGACATTCACATCGCTGCTTACGTTCTCGAGGTTGA
GCCGTCGAGCTTCTCGCGCGCTCGCTCTCGCTCTCAGCGACCGAGGCTGACTCTCTTCTCGCTGAGTCTGCAATGAGTCC
GCCACTCTGCAACCCGCTCACTACTCTGTGTCACGCGCAGAGATGGGCAACCGCCGCTGCAACTCGCTCGC
TCTCATCTCGCGCGCGCAGCTCCGAGAGCAACGAGCTCTTTCTCTGTCGCTGCTGTTGCAATGAGTCC
CGACGCAATAGCGACTGACTCGCGATCTTGAGAGCTTTCGCGCTCGACCTGTACTGACGAGCTCGAGCGC
TGACCTTCCGCGCATGAGTCTGCACTTCAAGAAAGCTTCAGCCCTCTTCCGAGTCTCTCTCAGACGAC
CCTCGGCACTGCGCTCGACGTCAACGCTCGCGCTCGAGAGTCAGAAAGGCGCTCAACAGCGCTCTCGAGAC
ACGACGACGCTACGACCTCGAGCGCGCTGCGACGAGCTTCTGCTACGCGACGACGCTGTCGAGCTCC
TCTGCTCTCGCTCTCGCCAAAGTCTACTGCTTACTGCGCTCAACGCGTGAAGGTTGCTCTCGCGCAGACGAC
CATCTCGCTCGACGCGAGGTCGCAACACTGTTTCGCGACAGCGGCTTTCGAGGCGCGCGCGCGCATCG
CTCTCGCGCGCGACGCGGCTCTGATCTGCTTCGTCGCGAGGAGCTCGGCTCGAGCGCGCGCGCGGAGCT
TGTTTGTTCGCGCTCGACGACGAGACACTCGGAGAGCAAGCTTCGCGCATACGAGGACCTCAAGGACCGCT
CATCAACACGCTCTCGTCAAGATGCTCGCGTAAGSCGCGACGACCTCGCTAGAGCGCCCTCATCCCGCA
AGACCAGCTTTTCGAGCTCTGTCGTCGTCGCAAGACGAGTCTTCTCCATACACATGTGCTCTTACTCTCGC
CGTCACTACGCTCTCTAGTTCTTTCTGATCCGCGGCTCTCT

FIGURE 4